

EXHIBIT 1

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

HEADWATER RESEARCH LLC,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,

Defendants.

Case No. 2:23-CV-00103-JRG-RSP

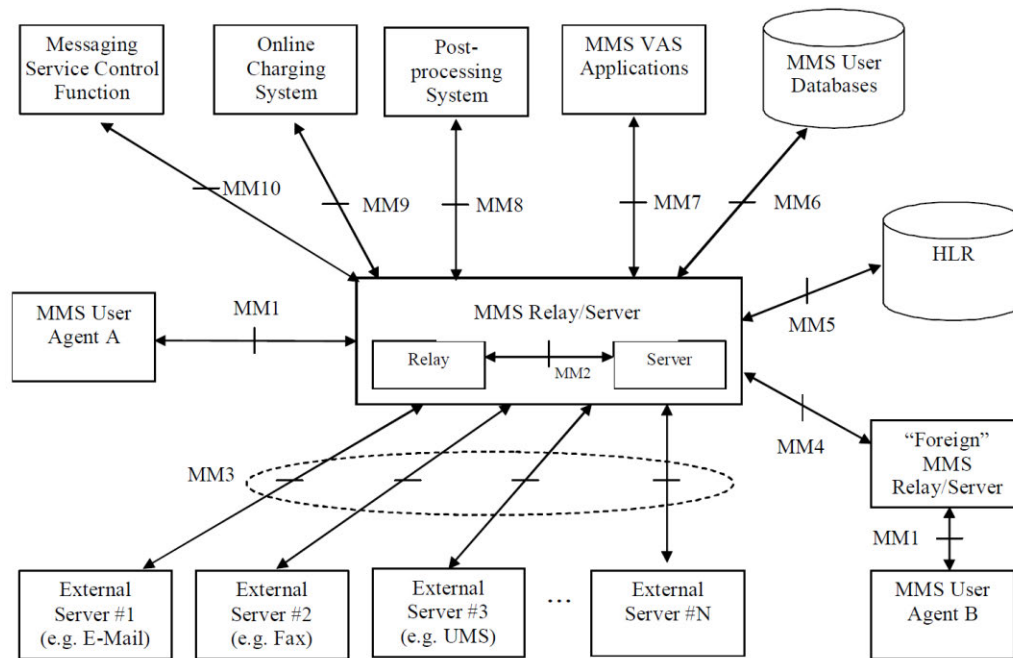
**OPENING EXPERT REPORT OF IAN FOSTER, PH.D.
REGARDING INVALIDITY OF THE '733, '117, AND '192 PATENTS**

I declare under penalty of perjury that the following is true and correct.

Executed on September 26, 2024 at Grenoble, France by:



IAN FOSTER, PH.D.



TS-23.140 at 24, Fig. 3.

146. “MMS User Agent A” is an “application residing on a UE [user equipment]... or... external device” that “performs MMS-specific operations on a user’s behalf and/or on another application’s behalf.”⁴²

147. The MMS Relay/Server relays messages from the network to the MMS User Agent using interface MM1. TS-23.140 at 17-18, 21, 23-25. The messages may include “MMS VAS [Value Added Services]” content, “provided... by third-party Value Added Service Providers (VASP)” via interface MM7,⁴³ and then relayed to the MMS User Agent to “provid[e] Value Added Services (e.g. news service or weather forecasts) to MMS users.”⁴⁴ The MMS Relay/Server can relay messages from “several MMS VAS Applications” in the network.⁴⁵

⁴² *Id.*, 14, 18-19.

⁴³ *Id.*, 14, 18, 23

⁴⁴ *Id.*, 14, 41.

⁴⁵ *Id.*, 18.

148. “MMS may be used to transport data specific to applications” “other than the MMS User Agent” which also “reside on [the] MMS User Agent [device].”⁴⁶ For such “application data,” “the MMS User Agent... route[s] the received MMS information on to the destination application” using a “destination application identifier” included with the received message.⁴⁷

149. TS-23.140 discloses both “encryption... on an end-user to end-user basis,” and using protocols such as Transport Layer Security (TLS) and “authentication mechanisms based on public/private key cryptography” for securing communications.⁴⁸

13.1.4.2. Prior Art Status

150. The Motorola E815 was introduced in the summer of 2005.⁴⁹ An exemplary Internet Archive capture of Mobile Tech Review website dated December 19, 2005 corroborates the public availability of the Motorola 815 at least as of that date.⁵⁰

151. TS-23.140 shows on its cover page “2005-03” as the year and month during which the document was released by 3GPP:

⁴⁶ *Id.*, 14, 54-56; Transporting data between wireless applications using a messaging system—MMS, Miraj E Mostafa, Wireless Communications and Mobile Computing (2007) (“Mostafa”) at 732-733.

⁴⁷ TS-23.140 at 14, 54-56.

⁴⁸ TS-23.140 at 19, 41, 25-26; Open Mobile Alliance; Multimedia Messaging Service Architecture Overview (MMSARCH) specification, available at https://www.openmobilealliance.org/release/MMS/V1_2-20030923-C/OMA-MMS-ARCH-V1_2-20030920-C.pdf; at 21.

⁴⁹ E815 Review.

⁵⁰ <https://web.archive.org/web/20051219084719/https://www.mobiletechreview.com/phones/motorola-e815.htm>.

280. As discussed with respect to claim limitations 1[a] and [d], GTalkService discloses, or at least renders obvious, this limitation. Claim 30 recites that the encrypted agent message is received from a “network element” instead of a “service control server link element” as in claim 1. The ‘733 patent uses “network element” to encompass any element that is part of a network.¹⁴⁷ A connection server interfacing with a GTalkService client, as discussed in limitation 1[c], is a “network element.”

30[b] using an encryption key shared between the service control device link agent and the network element, obtaining a decrypted agent message, the decrypted agent message comprising a particular agent identifier and message content for delivery to a particular device agent of a plurality of device agents on the end-user device, each of the plurality of device agents identifiable by an associated device agent identifier and communicatively coupled to the service control device link agent through an agent communication bus, the particular agent identifier identifying the particular device agent, the message content from a particular server of a plurality of servers communicatively coupled to the network element; and

281. As discussed with respect to claim limitations 1[b], [c], and [e], GTalkService discloses, or at least renders obvious, this limitation.

30[c] delivering the message content to the particular device agent over the agent communication bus based on the particular agent identifier.

282. As discussed with respect to claim limitations 1[f], GtalkService discloses, or at least renders obvious, this limitation.

14.2. Motorola E815 in view of Ogawa renders obvious the asserted claims of the ’733 patent

14.2.1. Claim 1 Analysis

1[pre]. An end-user device comprising:

¹⁴⁷ ‘733 Patent, 23:46-54, Figs. 1-8.

283. To the extent the preambles are limiting, the Motorola E815 is an end-user device.¹⁴⁸



1[a]. a modem for enabling communication with a network system over a service control link provided by the network system over a wireless access network, the service control link secured by an encryption protocol and configured to support

¹⁴⁸ Motorola E815 for Verizon Review, MobileTechReview (Dec 14, 2005) (“E815 Review”), available at <https://www.mobiletechreview.com/phones/motorola-e815.htm>, archived at <https://web.archive.org/web/20051219084719/https://www.mobiletechreview.com/phones/motorola-e815.htm>.

control-plane communications between the network system and a service control device link agent on the end-user device;

284. Motorola E815 discloses this limitation. I discuss this limitation in two parts below.

285. **First**, the E815 had a “modem for enabling communication with a network system.”

The E815 was “a digital dual band phone supporting both the 800 MHz CDMA and 1900 MHz PCS bands.”¹⁴⁹ For the E815 to access the network systems such as CDMA, it had to be equipped with a modem, a component that modulates and demodulates signals so that data can be sent and received wirelessly.

286. Further, the E815 supported MMS.¹⁵⁰ In MMS, the MMS User Agent communicates with various network elements (shown in orange below) through interface MM1, including Relay/Server and multiple VAS applications (via the Relay/Server).¹⁵¹ A POSITA would have understood that servers in the MMS environment such as the Relay/Server and multiple VAS applications are a “network system.”

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ TS-23.140 at 14, 18, 23.

communications (affecting a service being delivered) disclosed in the '733 Patent.¹⁵⁷ Thus, a POSITA understood MM1 is “configured to support control-plane communications” as claimed.

292. A POSITA would likewise have understood these communications are “between” Relay/Server (which is part of the claimed “network system” ([1a]) and “a service control device link agent on the end-user device,” as claimed. MMS User Agent is a device-side application that communicates with the MMS Relay/Server, “perform[s] [service]-specific operations on a user’s behalf and/or on another application’s behalf” and, as discussed above, enables the transmission and receipt of communications that control the services the device receives via (and on behalf of) the MMS Relay/Server. TS-230.14 at 14, 19, 23-24, 30-31, 35-36. User Agent in the E815 is thus a “service control device link agent.”

1[b]. a plurality of device agents communicatively coupled to the service control device link agent through an agent communication bus, each of the plurality of device agents identifiable by an associated device agent identifier; and

293. The E815 discloses this limitation. I discuss this limitation in three parts below.

294. **First**, under the Court’s construction of “device agents” (*i.e.*, “a piece of software on the end-user device that performs certain functions for other software”), the E815 discloses a “plurality of device agents.”

295. In the E815, MMS is “used to transport data specific to applications” residing on the end-user device that are not the MMS User Agent.¹⁵⁸ TS-23.140 discloses transporting data that include the “application identifier of the destination application” and “application/implementation specific control information.”¹⁵⁹ This “received MMS information” is “immediately routed” by the MMS User Agent “on to the destination application that is referred

¹⁵⁷ ‘733 patent at 8:60-9:15.

¹⁵⁸ TS-23.140 at 54-55; Transporting data between wireless applications using a messaging system—MMS, Miraj E Mostafa, Wireless Communications and Mobile Computing (2007) (“Mostafa”) at 732-733, section 2.2.

¹⁵⁹ TS-23.140 at 54-55.

to from the destination application identifier (based on the negotiated details upon application registration process) without presentation to the user.”¹⁶⁰

296. A POSITA would have understood that this information is used by the destination application to perform functions on behalf of, *e.g.*, a server for a VAS application or an application on another terminal.¹⁶¹ For example, for a chess application, the MMS User Agent would have received the opposing player’s next move from a server and routed it to a software component in a chess application, which then would have caused the next move to be processed by another software responsible for rendering user display and displayed on the user interface. Because the destination applications in the E815 are implemented “in software” on the end-user device and receive information specific to their associated services to perform functions for other software, a POSITA would have understood these applications to be “a plurality of device agents” under the Court’s construction.

297. **Second**, the MMS User Agent is communicatively coupled to the device’s other applications “through an agent communication bus.” TS-23.140 discloses that its multiple additional “[a]pplications” on the user device “transport application specific data using MMS.”¹⁶² The interface through which MMS User Agent communicate with other applications constitute “an agent communication bus.”

298. **Third**, in the E815, “each of the plurality of device agents” is “identifiable by an associated device agent identifier.” In TS-23.140, applications need to register with MMS User Agent after being loaded on the end-user device.¹⁶³ The MMS User Agent delivers application-specific messages to the correct destination application based on a “destination application

¹⁶⁰ TS-23.140 at 56.

¹⁶¹ Mostafa at 732-733, section 2.2.

¹⁶² TS-23.140 at 54.

¹⁶³ TS-23.140 at 54-55.